OPERATIONAL RISK MANAGEMENT

STRATEGIC ANALYSIS
OF
OPERATIONAL RISK MANAGEMENT

EXECUTIVE DEVELOPMENT

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ABSTRACT

This research project analyzed the issue of developing a template for an effective Operational Risk Management Program for the Headquarters and Air Combat Command Fire Departments. The problem was that a formal, effective and comprehensive Operational Risk Management Program did not exist at the Headquarters or throughout Air Combat Command Fire Departments. The purpose of this research project was to develop a template for an effective Operational Risk Management Program for the Headquarters and Air Combat Command Fire Departments.

This research employed action research supported by descriptive and historical research methodology (a) to define operational risk management, (b) to explore how the methodology could be employed in fire departments, (c) to assess the benefits, and (d) to determine if other United States Air Force Fire Protection headquarters organizations had an Operational Risk Management Program in place.

The principle procedures employed were to review risk management principles and processes and determine if other United States Air Force Fire Protection organizations had an existing Operational Risk Management Program in place.

The major result of this research was the development of an Operational Risk Management Program template for the Headquarters and Air Combat Command Fire Departments.

The recommendation resulting from this research was to use the Operational Risk Management Program template to initiate the education process necessary to establish an Operational Risk Management Program at the Headquarters and Air Combat Command Fire Departments.

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INTRODUCTION

The Fire Protection Office at Headquarters Air Combat Command long ago recognized the importance of operational risk management (ORM) methodology in the emergency response area. A major problem exists today in that a formal, effective, and comprehensive Operational Risk Management Program does not exist at the Headquarters or throughout Air Combat Command fire departments.

The purpose of this research project was to develop a template for an effective Operational Risk Management Program for the Headquarters and Air Combat Command Fire Departments. Action research supported by historical and descriptive research methods were employed to answer the following questions:

1. What is operational risk management?
2. How can the methodology be employed in fire departments?
3. What are the benefits?
4. Do other United States Air Force Fire Protection headquarters organizations have an Operational Risk Management Program in place?

BACKGROUND AND SIGNIFICANCE

Operational risk management in the fire service is a not a new concept in theory and one in which most departments have discussed, but few have successfully implemented (Wilder, 1997). An assessment of risk, or risk analysis, needs to be a comprehensive risk-versus-benefit process. When it is completed, all parties involved (firefighters, supervisors, chief officers, and the community) need to know what is an

acceptable risk at every level of the organization (Bachtler and Brennan, 1995). While fire protection officials must always be concerned with reducing the total cost of fire (fire loss, plus cost of insurance, prevention, and suppression), citizens living in tight economic times will ultimately reserve the right to make decisions, or "trade-offs", concerning the level of fire protection they wish their tax dollars to purchase. This "level of acceptable risk" is a controversial subject that few wish to discuss, yet every fire service in the world must deal with (Covington, 1998).

For more than thirty years, dedicated professionals have accomplished much toward the goal of managing risk. Yet for both the executive and risk professionals, the target is still not in focus (Grose, 1987). Executives have historically overlooked risk for several reasons. One, there was no rational, straightforward way to combine all the facets of risk systematically into a prioritized and manageable scheme. Two, because of the human tendency to be optimistic, executives often relegated risk to a role of secondary importance. Three, executives often avoided examination of the full spectrum of risks because they believed that every single risk, once identified, must be controlled. Four, executives have generally ignored human factors as a prime source of risk, again because there was no logical method to assess the issue. Finally, executives sometimes defer consideration of risks until there is no option but to react to them (Grose).

In a recent memorandum to all Air Combat Command units, Air Combat Command Commander, General Richard E. Hawley's comments on ORM were directed at achieving further dramatic reductions in mishap rates, he concluded that ORM is the tool that will help to attain that goal.

> "Operational risk management is a way to manage risk and applies to everything we do. Most of us have practiced the three common sense tenets of ORM for years: first, never accept unnecessary risk—risks that have no benefits and are clearly not worth taking; second, ensure that the decision to accept risk is made at an appropriate level; finally, we should not be afraid of risks. We should accept risk when the benefits clearly warrant it and rid ourselves of control measures that are too restrictive. We need to train the way we expect to fight. ORM is not a radical new way of doing business; we have been applying ORM philosophy and methods intuitively for years. Our record low mishap rates in the air and on the ground are a tribute to this. However, with ORM we now have a set of tools that will allow us to achieve even greater, more consistent results by using a systematic method rather than relying on experience."

In terms of ORM in Air Combat Command Headquarters and Fire Departments, this is a new tool for operational excellence and to enhance leadership effectiveness. The manager or fire officer must be concerned with safeguarding his/her people and optimizing performance. According to the National Fire Protection Association, fire fighting has been recognized as the most hazardous occupation in North America in terms of occupational death and injury statistics. Each year in recent history, over 100 line-of-duty deaths have been recorded in the U.S. alone. The statistics compiled annually by NFPA on fire service deaths and injuries are more than sufficient evidence to demonstrate the need for increased efforts to reduce this toll. The safety and health aspect of risk management was incorporated into NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, during the 1997 revision. In

Chapter 2 of this standard, the requirements of the risk management program are stated as follows (*National Fire Protection Association*, 1997):

- 2-2.1: The fire department shall adopt an official written risk management plan that addresses all fire department policies and procedures.
- 2-2.2: The risk management plan shall cover administration, facilities, training, vehicle operations, protective clothing and equipment, operations at emergency incidents, operations at nonemergency incidents, and other related activities.
- 2-2.3: The risk management plan shall include at least the following components:
    - (a) Risk Identification: Potential problems.
    - (b) Risk Evaluation: Likelihood of occurrence of a given problem and severity of its consequences.
    - (c) Risk Control Techniques: Solutions for elimination or mitigation of potential problems; implementation of best solution.
    - (d) Risk Management Monitoring: Evaluation of effectiveness of risk control techniques.

In the emergency response business, accountability on the fireground is crucial, but risk management starts long before firefighters respond to a call. As in pre-incident planning, risk management begins by sitting down and identifying potential risks. Risk management encompasses cost-benefit analyses that will help policy-makers delegate scarce resources (Wolf, 1998).

Today's emergency services managers need a tool to address the numerous conflicting priorities, limited resources, and increased legal ramifications that regularly impact their decisions. The recent publication of a more defined standard involving fire fighter safety is only one example of the legal challenges today's managers face (Covington, 1998). On January 8, 1998 Occupational Safety and Health Administration (OSHA) revised the Respiratory Protection Standard, 29 Code of Federal Regulation (CFR) 1910. This is significant in that the revision defines an immediately Dangerous to Life or Health Atmosphere (IDLH) and establishes a new standard (CFR, 29, 1910.134, 1998). This means that in the event of an injury or fatality at an incident, the new "standard" could potentially be part of a civil liability assertion that a department is not meeting a recognized standard (*ARFF News*, 1998). The National Fire Academy's *Executive Development Course*, explored this issue in terms of the need for proactive, effective leadership, fact-based decision making, and organizational culture change (National Fire Academy [NFA], 1998).

LITERATURE REVIEW

A practical method of addressing risk from an executive's point of view was provided in *Managing Risk*. According to Dr. Vernon Grose, an international authority in the field of risk management, spectacular accidents in the chemical and construction industries…the rise of international extortion and hijacking…and a host of high visibility workplace and consumer hazards all serve as a reminder that preventing risk is a "must" for management in today's litigious society. Yet, attempting to eliminate all risk on a "spare no expense" basis is a practical impossibility. Grose (1987) maintains

that if an organization is to survive, it must conserve its limited resources by *prioritizing risks*. Important for today's emergency services managers, as decisions are necessary that involves a risk-benefit approach.

Operational Risk Management enables commanders, functional managers, supervisors, and individuals to maximize operational capabilities while minimizing risks by applying a simple, systematic process appropriate for all organizations. For each failure, mishap, or loss there are some financial or operational costs that impact an organization's capability to respond to future taskings. General Godsey, Chief of Safety, United States Air Force, maintains that it is critically important that *everyone* in the organization work to prevent mission failures, mishaps, or other forms of loss in the workplace (Air Force Instruction 91-213, 1997).

Risk Management is the process used by decision-makers to reduce or offset risk. The risk management process provides leaders and individuals a systematic mechanism to identify and choose the optimum course of action for any given situation. Risk management must become a fully integrated element of planning and executing an operation (Air Force Pamphlet 91-214, 1997).

Risk Management is distinct in that it is a new idea in the fire service, even though it has been informally applied for years. Such activities are primarily concerned with safety management, loss prevention, and awareness of financial liability. Among the functions common to fire department Risk Management Programs are the coordination of policies, management of programs and activities, effective use of committees and personnel, and centralization of related functions under a common

umbrella. Ultimately, every member is an active player in his/her department's Risk Management Program (Wilder, 1997).

Prior to the National Fire Protection Association (NFPA) 1500, *Standard on Fire Department Safety and Health Program,* there was no consensus standard for an occupational safety and health program for the fire service. Fire service organizations are increasingly subject to regulations that were developed for general industry and do not provide for many of the specific needs and concerns of an organization involved in the delivery of emergency services (National Fire Protection Association [NFPA], 1500, 1997). The development of a risk management plan may be the single most important effort that a fire department can take to ensure the occupational safety and health of its members. The plan identifies hazards, suggest alternatives, and suggest means of protection from identified hazards; and is a "blueprint" for action (Teele, 1993).

A most significant source of current, comprehensive information was obtained from the Transportation Safety Institute. Key concepts were contrasting modern ORM with traditional safety approaches, outlining the benefits and key tenets of ORM, and established the context for the development of an ORM Program (Transportation Safety Institute, 1998).

In summary, the reviewed literature identifies and gives priority to (a) defining risk management, (b) underscoring the need for risk management methodology in emergency services arena, and (c) highlighting the benefits of an effective Operational Risk Management Program.

PROCEDURES

Definition of Terms

Risk. The possibility of injury or loss; the presence of a dangerous element or operational factor, known or unknown (Wilder, 1997).

Management. The responsible supervision of an activity; the judicious use of means and resources to achieve a desired end (Martineete, 1998).

Risk Management. The process of reducing the potential for damage or harm to people, property, and the environment (Moriarty, 1995).

Operational Risk Management. A logic-based, common sense approach to making calculated decisions on human, material, and environmental factors before, during, and after specific operations. The process of detecting, assessing, and controlling risk to enhance total organizational performance. A tool to assist managers to maximize operational capabilities while minimizing risks (Air Force Instruction 91-213, 1997).

Exposure. The number of personnel or resources affected by a given event or, over time, by repeated events. This can be expressed in terms of time, proximity, volume, or repetition. This parameter may be included in the estimation of severity or probability, or considered separately (Air Force Instruction 91-214, 1997).

System. A composite, at any level of complexity, of personnel, procedures, materials, tools, equipment, facilities, and software. The elements of this composite entity are used together in the intended operational or support environment to perform a given task or achieve a specific mission requirement (Air Force Instruction 91-214).

Hazard. Any real or potential condition that can cause mission degradation, injury, illness, death to personnel or damage to or loss of equipment or property (Air Force Instruction 91-214).

Mishap. An unplanned event or series of events resulting in death, injury, occupational illness, or damage to or loss of equipment or property (Air Force Instruction 91-214).

Probability. The likelihood that an individual event will occur (Air Force Instruction 91-214).

Risk. An expression of mishap consequences in terms of the probability of an event occurring, the severity of the event and the exposure of personnel or resources to potential loss or harm. A general expression of risk as a function of probability, severity, and exposure can be written as: Risk=*f*(P,S,E) (Air Force Instruction 91-214).

Research Methodology

The desired outcome of this research was to develop an Operational Risk Management Program template for Air Combat Command Headquarters and Fire Departments. Historical research was employed in that a literature review was conducted to examine the ORM methodology and processes. Descriptive research was employed to determine the extent that an ORM Program was already in place in other United States Air Force organizations. Action research methodology resulted in a template being developed for Air Combat Command Headquarters and Fire Departments.

RESULTS

A copy of the Operational Risk Management Program template is in Appendix A.

Answers to Research Questions

Research Question 1. Operational risk management is a logic-based, common sense approach to making calculated decisions on human, material, and environmental factors before, during, and after mission activities and operations, i.e., on-and off-the-job. It enables managers, supervisors, and individuals to maximize operational capabilities while minimizing risks by applying a simple, systematic process appropriate for all personnel and functions (Air Force Instruction 91-213, 1997).

Research Question 2. Managing organizational risk is not unique to fire departments. All organizations must manage some types of risk. The nature of the activities conducted by a fire department makes risk management a highly important and challenging task. Different activities that are performed by emergency services organizations involve exposure to different kinds of risks. The primary mission of fire departments is to reduce the probability that the community will be damaged or destroyed by fire and the probability that deaths or injuries will result from fires. The probability of fire occurrence is addressed through fire prevention and public education activities, which are relatively low risk activities. Fire suppression and rescue functions are conducted to limit the damages and other negative consequences that result when a fire does occur and involves significantly higher risk to the service providers. Risk management in fire departments incorporates a full range of measures that may be used to limit, reduce or eliminate the probability that an undesirable outcome will occur. It also

includes all types of measures that can be used to limit, reduce or eliminate the anticipated magnitude of the undesirable outcomes, if it does occur. Risk management measures employed by fire departments may address the probability of the occurrence, the probable magnitude of the outcome, or both (U.S. Fire Administration, 1996).

While fire fighters generally have been effective in reducing risks to the public, they have often failed to apply the same risk management principles to their own operations. Unfortunately 100,000 injuries to fire fighters each year demonstrate the need for better risk management (Teele, 1993). The fire service needs to adopt some sort of methodology to more thoroughly evaluate—and measure—our fire problem. While many programs exist, the missing link is a unifying and comprehensive system that creates a framework we can use when formulating fire protection policies (Coleman, 1998). Risk management methodology is employed in fire departments by incorporating it into all aspects of the training process. The risk management concept is a continuous, proactive approach that must be a part of all department operations. Training is the best avenue for developing, implementing, and managing the risk management process (Loflin and Kipp, October, 1997).

Research Question 3. The fundamental benefit of risk management is to enhance mission effectiveness at all levels while preserving assets and safeguarding health and welfare. Beyond reducing losses, risk management also provides a logical process to identify and exploit opportunities that provide the greatest return on investments of time, dollars, and personnel (Air Force Instruction 91-214, 1997). Risk management is distinct in that it is a new idea in the fire service, even though it has been informally applied for years. Such activities are primarily concerned with safety management, loss prevention,

and awareness of financial liability. Developing a new Fire Department Risk Management Program can be a thankless, time-consuming, and exhausting job. Still, the resulting benefits to departmental operations far outweigh the challenges along the way (Wilder, 1997). Capabilities of a fully integrated ORM program include (Transportation Safety Institute, 1998):

- Up to a 90% reduction in all kinds of losses
- Provides the single most powerful tool to expand operational capabilities
- Provides the single most powerful tool to expand training realism and effectiveness
- Can serve as the catalyst for positive transformation of management-employee relations
- Can serve as the "leading edge of quality"
- Can become a critical competitive edge in battle or in the marketplace

The risk management process is a tool that can keep the emergency services business a step ahead. It is not a cure-all, but it can identify problems or risks that can affect the organization. An effective risk management program encompasses many components. Adopting the classic risk management model is merely the first step in a successful process (Loflin and Kipp, February, 1997).

Research Question 4. Other United States Air Force headquarters organizations were contacted to determine if an Operational Risk Management Program had been developed in their organizations; and if so, to what extent. Through extensive discussions with other Fire Protection headquarters representatives, it was determined that in most organizations, components of a risk management program were in place to

some degree. However, not a single organization had developed a comprehensive ORM Program. A well-run Risk Management Program incorporates key functions of the organization, the components must touch every division within the department. In fact, one of the ingredients of successful risk management is the effective linking of all loss prevention activities into a single, unified program (Wilder, 1997).

DISCUSSION

The ORM template at Appendix A, which represents the results of this research, reflects the fact that Air Combat Command views ORM as a philosophy—vice a program—a process with tools to assist managers at all levels to assess risk and control measures in order to optimize decisions. Operational risk management provides a process that allows more consistent results by using a systematic method rather than relying solely on experience. ORM is a continuous, sequential methodology consisting of a basic number of steps that define a process. The number of steps may vary relative to mission requirements (five, six, etc.). Individuals at all levels, identify and control hazards through the ORM process. The following is a description of the Operational Risk Management Program Six-Step Process (Air Force Instruction 91-213, 1997).

a. Identify the Hazards. Hazards can be defined as any real or potential condition that can cause mission degradation, injury, illness, or death to personnel, or damage or loss of equipment or property.

b. Assess the Risk. Risk is the probability and severity of loss from exposure to the hazard. Assessment is the application of quantitative or qualitative measures to determine all the levels of risk associated with a specific hazard.

The assessment step in the process defines the probability, severity, and exposure of a mishap that could result from the hazard.

c. Analyze Risk Control Measures. Investigate specific strategies and controls that reduce or eliminate risk. Effective control measures reduce one of the three components (probability, severity, or exposure) of risk.

d. Make Control Decisions. Decision makers at the appropriate level choose controls based on analysis of overall costs and benefits.

e. Implement Risk Controls. Once control strategies have been analyzed, an implementation strategy needs to be developed and then applied by management and the work force. Implementation requires commitment of time and resources.

f. Supervise and Review. ORM is a process that continues throughout the life cycle of the system, mission, or activity. Once controls are in place, the process must be scrutinized to determine its effectiveness.

According to the *Fire Protection Handbook,* one of the most difficult tasks in the risk assessment process is addressing probabilities. Fire risk reflects both the probability of fire occurrence and the loss consequences of the fire. In both factors there is an element of uncertainty that must be recognized. Risk management addresses the value judgements involved in establishing acceptable levels of risk and methods of handling identified risks. The acceptable risk decision-making process is based on specific organizational goals and generally includes (in any order) the following.

- Profit (competitive market position)

- Protection of company assets (major loss exposure)
- Continued company operation (business interruption)
- Continued growth (expansion)
- Humanitarian concerns (employee and public safety)
- Community goodwill (potential embarrassment)
- Legal requirements (liability, building codes, etc.)
- Insurance company requirements
- Environmental concerns

If the risk is acceptable, no immediate action may be necessary, but monitoring for changes that could increase the risk must be done. If the risk is unacceptable, then decisions must be made about how to deal with the risk (Asa & Barry, 1997).

The most startling aspect of ORM is the open admission that all risks should not be controlled. There is a myth that says, "If you find a hazard or risk, you are obliged to do something about it." We live in an economic world, with always limited resources, it does not make sense to try to fix every situation where risk exists. The key word is *optimum* control of risks rather than total or maximum control. This means trading or juggling cost against performance against schedule until the best compromise is achieved (Gustin, 1996).

Key differences between ORM and traditional risk management programs include (Transportation Safety Institute, 1997):

- ORM is systematic not merely intuitive
- ORM focuses on excellence, not standards

- ORM addresses all dimensions of organizational risk, not just safety risk
- ORM doesn't aim solely at reducing risk but instead at optimizing it
- ORM enables a safety role in emergency situations
- ORM transforms safety from a "cost" to an "investment"
- ORM is "upstream" management instead of "downstream"
- ORM emphasizes getting it right the first time
- ORM is empirical and data-based
- ORM occurs from within the process, not from outside

Emergency services organizations, specifically fire departments continue to maintain a high reliability rating with the public. Operational risk management provides us with a set of tools that will allow us to achieve even greater and more consistent results by using a systematic method to approach issues rather than relying on experience. Risks have to be assessed against benefit, the purpose of ORM is to reduce risk and thus improve the ratio of benefit to cost. ORM costs nothing and be a real "money" maker. It requires no investment; it doesn't cost manpower, time, or equipment—just a commitment to approach it systematically. It really comes down to a culture, a mindset of doing business—a smarter way of doing business.

The template developed as a result of this research project will serve as a key element to the training and integration of ORM for both the Headquarters and fire departments within Air Combat Command.

RECOMMENDATIONS

An Operational Risk Management Program is essential to successfully manage today's complex organizations. It is recommended that the template at Appendix A be utilized to initiate the education process necessary to establish an Operational Risk Management Program at the Headquarters and Air Combat Command Fire Departments. ORM will naturally evolve from simple to more complex forms of implementation as cultural realization and acceptance are combined with the planned education process. This approach acknowledges that implementing ORM is dependent on each organization's unique culture to include such factors as budget constraints, manpower, and time. This is only the first step in the journey of making ORM part of the organizational culture.

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APPENDIX A

OPERATIONAL RISK MANAGEMENT (ORM) TEMPLATE

Operational Risk Management

Headquarters (HQ) and Fire Departments in Air Combat Command (ACC)

1

Operational Risk Management

A New Tool for Operational Excellence

- **Why ORM?**
- **What is ORM?**
- **Safety vs ORM**
- **ORM Vision**
- **Benefits of ORM**

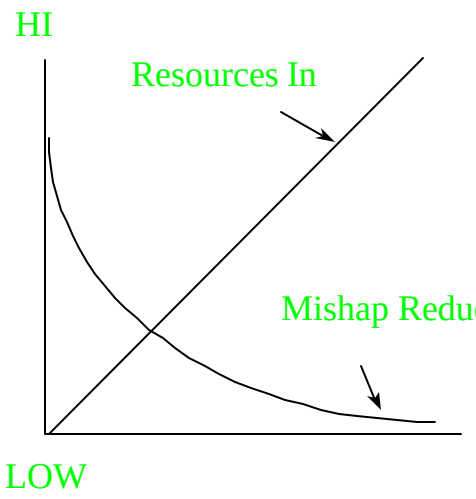
2

Air Combat Command

- **50 years of air and ground safety superiority**
- **Among the best safety records in USA**
- **A benchmark target on an international scale**

3

The Law of Diminishing Returns



Using current procedures, more safety effort produces minimal accident reduction benefits

4

What to Do?

- Work harder
- Invest more

• Time consuming
• Risky

- Innovate new approaches
- **Benchmark the best**

• Quick
• Low risk
• Cheap

5

The Key to Safety Excellence

To benchmark the best we must integrate safety into all operations -- The tool is

ORM

6

What Is Operational Risk Management?

Operational Risk management is the process of detecting, assessing, and controlling risk to enhance total organizational performance.

It is <u>not</u> simply an element of the safety program. It is the safety program and much more. Its goal is optimal performance. In a word:

Excellence

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AFI 91-213 Definition

- **ORM is a logic-based, common sense approach to making calculated decisions on human, material, and environmental factors before, during, and after Air Force operations**
- **It enables commanders, functional managers and supervisors to maximize operational capabilities while minimizing risks to the forces**

8

But We Have Always Managed Risk!

Yes. Intuitively & experientially

Ten key differences between modern risk management and traditional risk management

1. Modern ORM is systematic not merely intuitive.
2. Modern ORM focuses on excellence, not standards.
3. Modern ORM addresses all dimensions of organizational risk, not just safety risk.
4. Modern ORM doesn't aim solely at reducing risk but instead at optimizing it.

9

Ten Key Differences

5. Modern ORM enables a safety role in emergency situations.
6. Modern ORM transforms safety from a "cost" to an "investment".
7. Modern ORM is "upstream" management instead of downstream, This is consistent with modern management practice.
8. Modern ORM emphasizes getting it right the first time.
9. Modern ORM is empirical and data-based.
10. Modern ORM occurs from within a process, not from outside.

10

The Vision

An organization in which every leader, every employee is motivated to personally manage risk in all that they do both on- and off-duty with the objective of achieving world class safety performance and continuously expanding operational capabilities.

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Integration at a Level Never Before Seen in ACC

Enter Risk Management

- **Provides effective safety leadership procedures compatible with *all* mission requirements**
- **Focuses on expanding operational capabilities as well as safety, i.e... Not the least level of risk, the best level of risk**

NO OTHER SAFETY APPROACH PROVIDES THESE TWO CHARACTERISTICS

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All Risks Are Connected

- REDUCE RISK

Move the aircraft, ammo and fuel close together to improve protection against infiltrators

- INCREASE RISK

The violation of quantity distance standards assures proliferation of explosions & fire from any one source.

THEREFORE RISK MUST BE MANAGED ON AN INTEGRATED BASIS

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Benefits

- **Safety**
  - **Fewer mishaps**
  - **Additional resources due to decreased attrition rates**
- **Operational**
  - **Increased combat effectiveness**
  - **Enhanced (more realistic) training**

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Benefits

- **Reduction in serious injuries and fatalities**
- **Reduction in material and property damage**
- **Effective mission accomplishment**
- **Reduction in need for "crisis management"**
- **Universal application - can be used for any unit**
- **Proactive**

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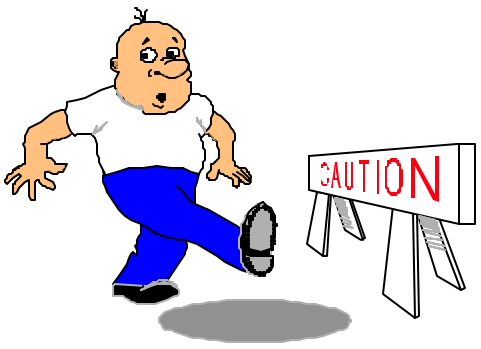
The Basics

- Definitions
- Types of Risk
- RM Principles
- 6-Step Process
- RM Responsibilities



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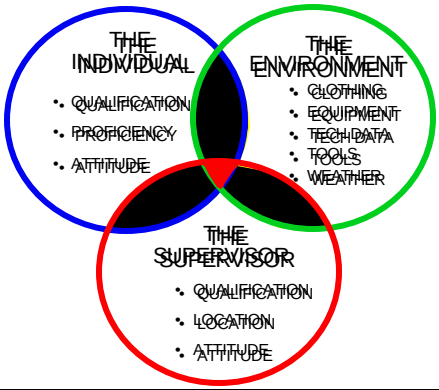
Definitions

- **System - A composite, at any level of complexity, of personnel, procedures, materials, tools, equipment, facilities, and software. The elements of this composite entity are used together in the intended operational or support environment to perform a given task or achieve a specific production, support, or mission requirement**



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Definitions

- **Hazard**
  - **A condition with the potential to cause damage, loss, or mission degradation**
- **Mishap**
  - **An unplanned event or series of events resulting in death, injury, occupational illness, or damage to or loss of equipment or property, or damage to the environment**
- **Probability**
  - **The likelihood that an individual event will occur**

18

Definitions

- **Severity**
  - **The expected consequences of an event in terms of degree of injury, property damage, or other mission impairing factors**
- **Exposure**
  - **The number of personnel or resources affected by a given event or over time by repeated events.**
- **RISK = P & S & E**
  - **Risk -- the probability and severity of loss linked to hazards**

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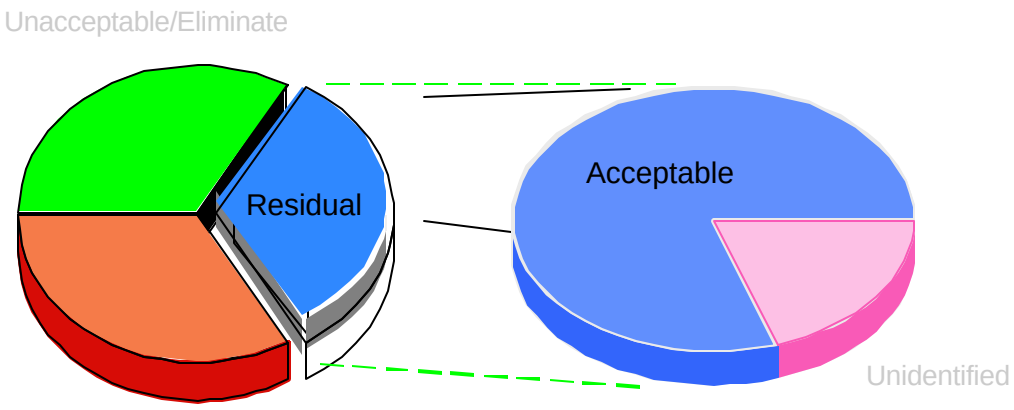
Types of Risk



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Acceptability of Risk

- **Risk is a fundamental reality**
- **Risk management is a process of tradeoffs**
- **Quantifying risk doesn't ensure safety**
- **Risk is a matter of perspective**

Realistically, some mishap risk must be accepted

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RM Principles

- **All human activity involving a technical device or complex processes entails some element of risk**
- **Do not panic at every hazard; there are ways of controlling them**
- **Keep problems in proper perspective**
- **Weigh the risk and make judgments according to your own knowledge, experience, and program need.**
- **Encourage other disciplines to adopt the same philosophy**

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RM Principles

- Operations always represent a gamble to some degree; good analysis tilts the odds in favor of the house
- Hazard analysis and risk assessment do not free us from reliance on good judgment
- It is more important to establish clear objectives and parameters for risk assessment than to find a cookbook approach and procedure
- There is no "best solution." There are a variety of directions to go. Each of these directions may produce some degree of risk reduction

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RM Principles

- To point out to a mission planner how he can manage risk better is much more effective than to tell him his approach will not work
- Safety is a condition which seldom can be achieved totally in a practical manner
- There are no "safety problems" in mission planning or design. There are only management problems which, if left unresolved, can cause mishaps

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Four Fundamental Rules

- Know the risk
- Do not accept unnecessary risk
- Make risk decisions at the right level
- **Accept risk when total benefits outweigh total risks**

Properly understood, risk management is not about risk, it is about opportunity.

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ORM Process

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6-Step Process

1 **Identify the Hazard**
- Hazard can be defined as any real or potential condition that can injury, illness, or death to personnel, or damage to or loss of equipment or property

2 **Assess the Risk**
- Assessment is the detection of hazards and the application of measurement to the level of risk they represent

3 **Analyze Risk Control Measures**
- Investigate specific strategies and tools that reduce or eliminate risk.

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6-Step Process

4 **Make Control Decisions**
- Various strategies for controlling risk include: accepting, avoiding, reducing, spreading, or transferring it

5 **Risk Control Implementation**
- Once control strategies have been analyzed, an implementation strategy needs to be developed and then applied by management and the work force

6 **Supervise and Review**
- RM is a process that continues throughout the life cycle of the system, mission, or activity
- Once controls are in place, then the process must be scrutinized to determine its effectiveness

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Levels of Risk Management

- Time-critical RM
  - "On the run" mental or oral review
  - Time-compressed situations
  - Most easily applied level of RM in off duty situations
- Deliberate RM
  - Planning an operation or evaluating procedures
  - Most effective when done in a group
- In-depth RM (Strategic RM)
  - More thorough risk assessment
  - Require more time and expertise

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Risk Management Responsibilities

- Managers:
  - Are responsible for effective management of risk
  - Select from risk reduction options provided by the staff
  - Accept or reject risk based on the benefit to be derived
  - Train and motivate leaders to use risk management

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Risk Management Responsibilities

- HQ Staff:
  - Assess risks and develop risk reduction options
  - Integrate risk controls into plans and orders
  - Eliminate unnecessary risk restrictions

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Risk Management Responsibilities

- Supervisors:
  - Must apply risk management and still develop a commitment to mission accomplishment and the welfare of subordinates
  - Must consistently apply effective risk management concepts and methods to operations/tasks
  - Must report risk issues beyond their control or authority to superiors for resolution

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Risk Management Responsibilities

- Individuals:
  - Must understand, accept, and implement risk reduction guidance as appropriate
  - Must maintain a constant awareness of the changing risks associated with the operation / task
  - Must make supervisors immediately aware of any unrealistic risk reduction or high risk procedures

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ORM Applications

- Used widely throughout the military
  - Army, Navy, Marines employ widely
- Used widely throughout industry
  - Your insurance company!
- Problem: ORM is long on theory, but short on practical applications

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ORM Applications

- Manpower savings achieved while reducing risk
  - Used six step process to break down training tasks
  - Identified hazards/risks
  - Implemented control procedures and made recommendations for new control procedures that actually REDUCED manpower requirements
  - Supervised and reviewed process, made changes to refine process

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ORM Applications

- Your mileage may vary
- Home grown applications work best, but adapted applications work the easiest
- ORM has a place in your organization (and in your life!), but it's up to you to figure out where

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